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| 10/757,477 | 01/15/2004 | Young Dae Kim | YHK-0131 | 4151 |
| 34610 7590 05/30/2008 KED & ASSOCIATES, LLP P.O. Box 221200 Chantilly, VA 20153-1200 | | | | |
| EXAMINER | | | | |
| BODDIE, WILLIAM | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/757,477

Applicant(s)

KIM, YOUNG DAE

Examiner

WILLIAM L. BODDIE

Art Unit

2629

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 5/9/08 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-7 and 32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-7 and 32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/5508)
Paper No(s)/Mail Date 3/27/08
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. In an amendment dated, March 27th, 2008, the Applicant amended claim 1, cancelled claims 4, 8-31 and added new claim 32. Currently claims 1-3, 5-7 and 31 are pending.

Response to Arguments

2. Applicant's arguments filed March 27th, 2008 have been fully considered but they are not persuasive.

3. On pages 5-6 of the Remarks, the Applicants argue that Matsumoto discloses increasing length sustain discharge periods and not increasing brightness weighting values.

4. The Examiner must respectfully disagree. It is well known in the art and Matsumoto explains that the length of a subfield's sustain period **directly** corresponds to the brightness weighting value. Matsumoto discusses just such a correlation in column 4, lines 27-28 stating in part that "the cell having a longer duration of light emission due to the sustained discharge within one field has higher luminance." Later in the specification Matsumoto is even more direct stating in column 25, lines 31-32 that the "LSB subfield is lowest in luminance."

5. Thus there appears to be little question that Matsumoto has disclosed that each of the remaining sub-fields other than the initial sub-field has a higher brightness weighting value than the initial sub-field. As such the rejections are updated for the most recent amendments and are maintained.

Claim Rejections - 35 USC § 103

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6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-3, 5-7 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakita et al. (US 6,545,423) in view of Applicant's Admitted Prior Art (hereinafter, APA) and further in view of Matsumoto et al. (US 5,854,540).

With respect to claim 1, Sakita discloses, a method of driving a plasma display panel, comprising:

applying a first waveform (TR2 in fig. 31, for example) to a sustain electrode (row electrode X in fig. 13) during a first time interval (preparation period TR; col. 14, lines 63-65) included in an initial sub-field (SF4 in fig. 31) of one frame (Tsf in fig. 31); and

applying a second waveform (TR1 in fig. 31; for example) to a sustain electrode during a second timer interval (preparation period TR) of all or fewer than all of the remaining sub-fields (SF1,2,3,p all have TR1) following the initial sub-field, wherein the first waveform is different from the second waveform (col. 18, lines 6-16).

Sakita does not expressly disclose, applying rising and falling pulses to a scan electrode, nor does Sakita disclose set-up and set-down intervals.

APA discloses, applying a rising pulse to a scan electrode during a set-up interval of an initialization period, wherein the rising pulse changes to a second voltage after the rising pulse has changed to a first voltage, wherein the second voltage is higher than the first voltage (Y electrode waveform in fig. 5);

applying a falling pulse to a scan electrode during a set-down interval of the initialization period, wherein the falling pulse changes to a fourth voltage after the falling pulse has changed to a third voltage, wherein the third voltage is higher than the fourth voltage (Z electrode in fig. 5).

APA further discloses, applying a first waveform to a sustain electrode during a first time interval that is a portion of the set-up interval (T_d in fig. 5); such that the sustain electrode is electrically floated in the first waveform during the first time interval that is a portion of the set-up interval (fig. 5; page 6, line s4 – page 8, line 11 of the current specification), and

applying a second waveform to a sustain electrode during a second time interval that is a portion of the set-up interval (Z electrode pulse in fig. 3), such that the sustain electrode is supplied with substantially a ground voltage in the second waveform during the second time interval that is a portion of the set-up interval of all or fewer than all of the remaining sub-fields (fig. 3, page 4, lines 1-21 of the current specification).

Sakita and APA are analogous art because they are both from the same field of endeavor namely, driving waveforms for plasma display devices.

At the time of the invention it would have been obvious to one of ordinary skill in the art to supply the scan electrode pulses taught by APA to the panel of Sakita.

Furthermore it would have been obvious to one of ordinary skill in the art to apply waveforms during to a sustain electrode during a portion of a set-up interval.

The motivation for doing so would have been increased contrast and less chance of brightness misfires (APA; page 6, lines 8-10).

To further explain the combination, Sakita discloses, applying one type of initialization waveform to one subfield (SF4 in fig. 31) of a frame and a separate distinct initialization waveform to the rest of the subfields (SF1 etc. in fig. 31) of the frame. The Applicant is also pointed to the fact that the addressing waveforms are identical from one subfield to the next, likewise the sustain waveforms are only altered from one subfield to the next due to the differences in luminance of the subfield. Finally and most telling, Sakita discloses that the initialization waveform of each subfield is dependent upon the weight (or brightness) of luminance of the subfield (col. 14, lines 63-67).

By Applicant's admission the waveforms of figures 3 and 5 have been known in the art prior to the Applicant's invention. Also known is that the initialization waveform of figure 5 provides for increased contrast, but is hampered by the fact that misfires occur in high brightness subfields. Finally it is also disclosed by the Applicant that it was previously known in the art that the initialization waveforms of figure 3 are not susceptible to brightness misfires in high brightness subfields, but lack the improved contrast quality of the figure 5 waveforms.

Thus it seems clear to the Examiner that it would have been obvious to one of ordinary skill in the art to combine the two teachings to create a plasma display device having improved contrast, as well as, protection against misfires in high brightness subfields.

Neither Sakita nor APA expressly disclose, wherein each of the remaining subfields other than the initial sub-field has a higher brightness weighting value than the initial sub-field.

Matsumoto discloses, wherein each of the remaining sub-fields other than the initial sub-field has a higher brightness weighting value than the initial sub-field (clear from fig. 13, that the higher brightness weighting values, i.e. 2^2 , 2^5 , succeed the initial sub-field).

Sakita, APA and Matsumoto are analogous art because they are all from the same field of endeavor namely sustain electrode waveforms for plasma display devices.

At the time of the invention it would have been obvious to order and apply the different initialization waveforms of Sakita and APA to the subfields as taught by Matsumoto.

The motivation for doing so would have been decrease the number of priming pulses and enhancing the contrast without appreciable degradation in the quality of the image (Masumoto; col. 25, lines 45-47, 57-58).

With respect to claim 2, Sakita, Matsumoto and APA disclose, the method as claimed in claim 1 (see above).

Neither Sakita nor APA expressly disclose, wherein said initial sub-field is at least one sub-field including the first sub-field of said frame.

Matsumoto discloses, wherein said initial sub-field is at least one sub-field including the first sub-field of said frame (first sub-frame is the LSB sub-frame (clear in fig. 13; aka 5th embodiment), as discussed in the 6th embodiment).

At the time of the invention it would have been obvious to order and apply the different initialization waveforms of Sakita and APA to the subfields as taught by Matsumoto.

The motivation for doing so would have been decrease the number of priming pulses and enhancing the contrast without appreciable degradation in the quality of the image (Masumoto; col. 25, lines 45-47, 57-58).

With respect to claim 3, Sakita, APA and Matsumoto disclose, the method as claimed in claim 2 (see above).

Matsumoto further discloses, wherein said initial sub-field is the first and second sub-fields of said frame (fig. 13 shows the order of the sub-fields, col. 25, lines 10-11 confirms that the second sub-field is indeed the sub-field that succeeds the first sub-field of the frame).

With respect to claim 5, Sakita, APA and Matsumoto disclose, the method as claimed in claim 1 (see above).

Sakita, when combined with APA and Matsumoto, discloses the set-up interval is for forming wall charges within one or more cells by a writing discharge, and the set-down interval is for erasing a portion of said wall charges by an erasure discharge (APA; clear from fig. 5; also see page 6, line 4 – page 8, line 11 of the current specification).

With respect to claim 6, Sakita, APA and Matsumoto disclose, the method as claimed in claim 5 (see above).

Sakita, when combined with APA and Matsumoto, discloses wherein wall charges within one or more cells are formed by a writing discharge during the set-up interval in each initialization period (APA; fig. 3) of the remaining sub-fields other than the initial sub-field, and wherein the set-down interval in each initialization period of the

remaining sub-fields a portion of said wall charges are erased by an erasure discharge (APA; also see page 4, lines 1-21 of the current specification).

With respect to claim 7, Sakita, APA and Matsumoto disclose, the method as claimed in claim 1 (see above).

Sakita, when combined with APA and Matsumoto, discloses wherein the sustain electrode is electrically floated during a shorter time than said first time interval in the set-up interval (APA; seems clear from a comparison between fig. 3 and fig. 5, that the sustain electrode is floated for a shorter time in the fig. 3, sub-field.).

With respect to claim 32, Sakita, APA and Matsumoto disclose, the method as claimed in claim 1 (see above).

Matsumoto further discloses wherein the initial sub-field has a brightness weighting value less than one half a maximum brightness weighting value (clear from fig. 13 that the sustain period of 2^7 is more than twice as large as the sustain period of 2^0 ; thereby corresponding to less than one half a maximum brightness).

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM L. BODDIE whose telephone number is (571)272-0666. The examiner can normally be reached on Monday through Friday, 7:30 - 4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sumati Lefkowitz/
Supervisory Patent Examiner, Art Unit 2629

/William L Boddie/
Examiner, Art Unit 2629